CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0135

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF BAKERSFIELD
FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
CITY OF BAKERSFIELD SANITARY LANDFILL
KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The City of Bakersfield (hereafter Discharger) owns and maintains a municipal solid waste landfill in the northeast part of the City of Bakersfield about three quarters of a mile south of the Kern River, in Sections 10, 11, 14, and 15, T29S, R28E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.

2. The facility consists of one unlined waste management unit (Unit) covering approximately 132 acres as shown in Attachment B, which is incorporated herein and made part of this Order. The facility is identified as Assessor's Parcel Number (APN) 146-011-36-6.

3. The site was originally established as a burn dump in 1943, and was converted to a sanitary landfill in 1956. The site ceased accepting refuse on 15 September 1983. The site was designated as an "Existing Unit" as defined in Title 23, California Code of Regulations, §2510, et seq. (Chapter 15).

4. On 27 October 1978, the Regional Board issued Order No. 78-175, in which the facility was permitted as a waste disposal site for the discharge of Group II and Group III wastes in accordance with the regulations in effect when the Order was issued.

5. On 27 October 2000, the Regional Board rescinded Order No. 78-175 and issued Order No. 5-00-235 which classified the Unit as a Class III landfill as defined in Title 27, California Code of Regulations, §20005, et seq. (Title 27).

6. Section 20080(g) of Title 27 states "Persons responsible for discharges at Units which were closed, abandoned, or inactive on or before November 27, 1984, may be required to develop and implement a detection monitoring program in accordance with Article 1, Subchapter 3, Subdivision 1 of this division (§20380 et seq.)." The Regional Board can also prescribe requirements pursuant to §13263 of the California Water Code.

7. This Order revises the existing Waste Discharge Requirements to provide for the construction of a final cover and to regulate post-closure maintenance of the facility.

SITE DESCRIPTION

8. The measured hydraulic conductivity of the native soils underlying the Unit ranges between 2.3×10^{-5} and 2.6×10^{-6} cm/sec.

9. The closest Holocene fault is the Kern Bluff fault, approximately two miles east of the site. The fault has offset modern soils by approximately two feet. Two historic earthquakes were recorded on the fault in 1954 and 1985 with Richter magnitudes of 2.5 and 2.4, respectively. A report prepared for a nearby area concluded that the Kern Bluff fault is an active tectonic feature capable of producing surface rupture in the future. Two faults have been mapped within the site boundaries. It is not known whether these faults are active although a Richter Magnitude 6.1 quake was recorded in the area. The peak horizontal ground acceleration has been calculated at 0.306g for a Richter Magnitude 6.1 quake at a depth of 10 kilometers below the site.

10. Land within 1,000 feet of the facility is used for residential, non-irrigated open space, and commercial activities including oil production. Residential areas are located immediately south of the landfill.

11. The facility receives an average of 6.7 inches of precipitation per year as shown on the Mean Annual Precipitation Map of Kern County prepared by the Kern County Public Works Department in 1985. The map was prepared based on data from the Department of Water Resources Bulletin No. 195 published in 1976. The mean pan evaporation is 73.4 inches per year as measured at the United States Department of Agriculture Station near Shafter.

12. The 100-year, 24-hour precipitation event is estimated to be 2.5 inches, based on data from the 100-year, 24-hour precipitation map prepared by the Kern County Public Works Department. Data for the map was provided by the National Weather Service and the United States Department of Agriculture, Natural Resource Conservation Service.

13. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060077 0006 B.

14. There are 41 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the site. No surface springs or other sources of groundwater supply have been observed. The Kern River is approximately three quarters of a mile north of the site.

SURFACE AND GROUND WATER CONDITIONS

15. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

16. Surface drainage is to the north towards the Kern River in the Kern Delta Hydrologic Area (557.10) of the Tulare Lake Basin.

17. The landfill is located along the eastern edge of the San Joaquin Valley near the boundary with the Sierra Nevada Mountains. The designated beneficial uses of the Kern River below Powerhouse No. 1, as specified in the Basin Plan, are municipal, agricultural, industrial service, and process supply; water contact and non-contact water recreation; warm fresh water habitat; preservation of rare, threatened, and endangered species; and groundwater recharge.

18. The first encountered groundwater is over 600 feet below the native ground surface. Groundwater elevations range from approximately 121 feet MSL to 103 feet MSL. Monitoring data indicate that the groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as two feet.

19. During drilling, natural gas has been encountered at elevations greater than the groundwater surface within the boundaries of the waste management facility.

20. Monitoring data indicates background groundwater quality has an electrical conductivity (EC) ranging between 40 and 300 micromhos/cm, with total dissolved solids (TDS) ranging between 262 and 302 mg/l.

21. The direction of regional groundwater flow is toward the south. There are no site-specific data on the direction of groundwater flow or variability of direction or gradient.

22. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.

WASTE AND SITE CLASSIFICATION

23. The Discharger previously discharged municipal solid wastes, which are defined in §20164 of Title 27.

24. The site characteristics where the Unit is located (see Finding No. 8) do not meet the siting criteria for a new Class III landfill contained in §20260(a) and (b)(1) of Title 27. As such,

the site is not suitable for the containment of Class III wastes as described in Finding No. 23, without the construction of additional waste containment features in accordance with §20260(b)(2) of Title 27 and State Water Resources Control Board Resolution No. 93-62.

GROUNDWATER AND SOIL-PORE LIQUID DEGRADATION

25. Volatile organic compounds that are common constituents of crude oil and other petroleum constituents have been detected in groundwater at the site. Detection of these compounds is believed to be naturally occurring and not indicative of a release from the Unit. Other volatile organic landfill waste constituents have not been detected in groundwater.

26. Volatile organic compounds (VOCs) have been detected in soil-pore liquid. The VOCs detected include: chlorobenzene; dichlorobenzene; dichloroethene; ethylbenzene; isopropylbenzene; isopropyltoluene; naphthalene; toluene; trichlorobenzene; trimethylbenzene; xylenes; acetone; carbon disulfide; and methyl ethyl ketone. Many of these VOCs may be associated with naturally occurring petroleum deposits in the area. However, it appears that soil-pore liquid may have been degraded by waste constituents being carried from the Unit by landfill gas.

27. The site has an operating landfill gas extraction system.

GROUNDWATER AND VADOSE ZONE MONITORING

28. Subchapter 3 of Chapter 3 of Title 27 requires the discharger to institute a detection monitoring program for each waste management unit. California Water Code Section 13269 authorizes the Regional Board to waive waste discharge requirements where such waiver is not against the public interest. Such waiver shall be conditional and may be terminated at any time by the Regional Board.

29. The Discharger demonstrated that groundwater detection monitoring is not feasible due to the depth to groundwater, the thickness of the vadose zone, the presence of subsurface natural gas hazards, and the lack of evidence for landfill impacts to groundwater.

30. The Discharger also demonstrated that site specific conditions preclude the operation of an effective vadose monitoring system. The landfill gas extraction system and the construction of a final cover system will be the best practicable control measure available for the containment of the waste and the removal of landfill gas entering the vadose zone.

31. The Regional Board finds that it is not against the public interest to waive compliance with the Title 27 detection monitoring requirements at this facility. (See Finding No. 28)

CONSTRUCTION AND ENGINEERED ALTERNATIVE

32. The current cover on the landfill consists of a minimum of one foot of soil placed on top of refuse. The current cover did not meet the closure requirements in place at the time the landfill stopped accepting refuse and does not meet the final cover system requirements of Title 27.

33. Closure and post-closure maintenance requirements for landfills are contained in §21090 of Title 27. The prescriptive standard for the final cover is contained in §21090(a) of Title 27.

34. Section 20080(b) of Title 27 allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with §20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in §20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative cover system is consistent with the performance goals addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with §20080(b)(2) of Title 27.

35. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

36. The Discharger submitted a design plan for the proposed closure of the landfill in a Final Closure Plan dated 25 August 2003. The Final Closure and Post-Closure Maintenance Plans were determined to be adequate in a letter from the Regional Board dated 13 December 2004. The plan proposed the construction of an engineered alternative in lieu of the prescriptive cover design specified in §21090(a) of Title 27. The proposed engineered alternative is an evapo-transpirative design consisting of a vegetated soil layer.

37. The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design.

38. The China Grade Sanitary Landfill is located adjacent to the City of Bakersfield Sanitary Landfill and is owned by the County of Kern. A test pad was constructed at the China Grade landfill to demonstrate that an evapo-transpirative cover constructed of soil from a nearby borrow source would be an appropriate engineered alternative to the prescriptive

design.

39. The test pad successfully demonstrated that an evapo-transpirative cover constructed in that locality of soil from the local borrow source will likely perform in a manner consistent with the performance goals contained in Title 27.

40. The Discharger proposes to construct the final cover of soils from the same borrow source that was used to construct the test pad at the China Grade landfill.

41. Section 21090(a)(4)(A) of Title 27 requires that a periodic leak search, including a method for identifying and repairing breaches in "the low-hydraulic conductivity layer", be a component of the cover maintenance plan.

42. A common way to conduct a leak search on a cover that utilizes a low-hydraulic conductivity layer as part of its design is to monitor the surface of the cover for landfill gas emissions.

43. In an evapo-transpirative cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the bottom of the cover.

44. Landfill gas emissions do not definitely indicate a leak in an evapo-transpirative cover. A leak in this kind of cover will be detected by using a device that directly measures moisture flux through the cover, such as a pan lysimeter. This Order requires the Discharger to construct a pan lysimeter(s) beneath the final cover.

45. The Discharger will submit the final construction and design plans for the final cover, and the Construction Quality Assurance Plan, for review and approval of the Executive Officer prior to construction of the final cover.

46. Construction will proceed only after all applicable construction quality assurance plans have been approved by the Executive Officer.

CEQA AND OTHER CONSIDERATIONS

47. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301.
48. This order implements:

    a. *The Water Quality Control Plan for the Tulare Lake Basin, Second Edition*;

b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;

c. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

49. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

50. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

51. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

52. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.waterboards.ca.gov/water_laws/index.html and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 5-00-235 is rescinded, and that the City of Bakersfield, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of any additional waste at this facility is prohibited.

2. The discharged wastes shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or nonstatistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.

3. The discharge of solid waste, liquid waste, leachate, or waste constituents shall neither cause nor contribute to any degradation, contamination, pollution, or nuisance to surface waters, ponded water, or surface water drainage courses.

4. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

B. FACILITY SPECIFICATIONS

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

2. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, fire suppression, and construction.

4. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

5. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

6. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

7. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site, until closure of the landfill is complete.

C. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval **prior to** construction, design plans and specifications for a final cover system that includes a Construction Quality Assurance Plan meeting the requirements of §20324 of Title 27.

2. **By 31 December 2006**, the final cover system shall be constructed with an engineered alternative design known as an evapo-transpirative or monolithic design. The cover shall, at a minimum, consist of a four-foot thick vegetated soil layer placed over the existing interim cover soil. The soil layer shall be placed in such a manner that vegetative growth is assured while structural integrity is maintained.

3. One or more pan lysimeters shall be constructed on the upper deck of the Unit beneath the vegetated soil layer to monitor the effectiveness of the final cover in accordance with a plan approved by the Executive Officer.

4. The Discharger may propose changes to the final cover system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed final cover system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Regional Board.

5. Construction shall proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.

6. **By 31 March 2007**, following the completion of construction of the final cover system, the final documentation required in §20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, with this order, and with the standards and performance goals of Title 27.

7. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance (CQA) monitoring and testing

during the construction of a liner system. The CQA program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer.

D. MONITORING SPECIFICATIONS

1. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0135, which is incorporated into and made part of this Order.

2. The Discharger shall monitor the final cover in accordance with the Post-Closure Maintenance Plan and the Monitoring and Reporting Program.

3. Monitoring of the final cover shall include inspecting and recording the volume of moisture collected by the pan lysimeter(s) (see Construction Specification C.3).

4. The Discharger shall submit a report for Executive Officer review and approval by **31 March 2007** proposing what amount of moisture would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) with supporting documentation.

5. In the event the pan lysimeter(s) detects significant moisture infiltration, then, **within 120 days**, the Discharger shall submit a plan and time schedule, for Executive Officer review and approval, to evaluate the problem, and recommend and implement corrective measures.

E. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the offices of the City of Bakersfield-Waste Division, and make it available during working hours to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.

3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0135, which is incorporated into and made part of this Order.

4. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et*

seq. and 40 CFR 258 et seq.), dated April 2000, which are hereby incorporated into this Order.

5. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

6. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in a, b or c above if;

      1) the authorization is made in writing by a person described in a, b, or c of this provision;

      2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

      3) the written authorization is submitted to the Regional Board.

   e. Any person signing a document under this Section shall make the following certification:

      "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I

am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

8. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.

9. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Provision E.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board

11. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

12. The Discharger shall conduct an annual review of the financial assurance for closure and post-closure maintenance, and submit a report for Executive Officer review and approval. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Regional Board upon

the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

13. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

	Task	Compliance Date
a.	Construction Plans	
	Submit construction and design plans for Executive Officer review and approval. (see Construction Specification C.1)	**Prior to construction**
b.	Final Cover Construction	
	Complete final cover construction in accordance with approved construction plans. (see Construction Specification C.2)	**31 December 2006**
c.	Construction Report	
	Submit a construction report upon completion demonstrating construction was in accordance with approved construction plans for Executive Officer review and approval. (see Construction Specification C.6)	**31 March 2007**

	Task	Compliance Date
d.	Infiltration Report	
	Submit a report proposing what amount of moisture would constitute significant infiltration through the final cover as measured by the pan lysimeter(s)for Executive officer review and approval. (See Monitoring Specification D.4)	**31 March 2007**

e. Financial Assurance Review

1)	Annual Review of Financial Assurance for initiating and completing corrective action (see Provision E.11.)	**30 April each year**
2)	Annual Review of Financial Assurance for closure and post-closure maintenance (see Provision E.12.)	**30 April each year**

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provision of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 16 September 2005.

_____
THOMAS R. PINKOS, Executive Officer

REH:reh/rac

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0135
FOR
CITY OF BAKERSFIELD
FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
CITY OF BAKERSFIELD SANITARY LANDFILL
KERN COUNTY

Compliance with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, is ordered by Waste Discharge Requirements Order No. R5-2005-0135.

A. REQUIRED MONITORING REPORTS

	Report	Due
1.	Annual Monitoring Summary Report (Section D.5.)	**Annually**
2.	Facility Monitoring (Section C.2)	**Annually**
3.	Leachate Monitoring (Section C.3)	**See Table I**
4.	Response to a Release (Standard Provisions and Reporting Requirements)	**As necessary**

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2005-0135 and the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Each monitoring report shall include a compliance evaluation summary as specified in D. Reporting Requirements, of this Monitoring and Reporting Program.

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the Regional Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

Sampling Frequency	Reporting Frequency	Reporting Periods End	Report Date Due
Monthly	Quarterly	Last Day of Month	**by Annual Schedule**
Quarterly	Quarterly	31 March	**by Annual Schedule**
		30 June	**by Annual Schedule**
		30 September	**by Annual Schedule**
		31 December	**by Annual Schedule**
Semiannually	Semiannually	30 June	**by Annual Schedule**
		31 December	**by Annual Schedule**
Annually	Annually	31 December	**31 January**

The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the previous monitoring year. The annual report shall contain the information specified in D. Reporting Requirements, of this Monitoring and Reporting Program, and a discussion of compliance with the waste discharge requirements.

The results of **all monitoring** conducted at the site shall be reported to the Regional Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

C. MONITORING

1. Final Cover Monitoring

The Discharger shall monitor the final cover in accordance with the provisions in the Final Closure Plan and the Post-Closure Maintenance Plan. The pan lysimeter(s) shall be checked for the presence of water on a quarterly basis. The volume of water discovered in the lysimeter(s) shall be reported in the Annual Monitoring Summary Report.

2. Facility Monitoring

a. **Facility Inspection**

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in section D.3.d. of this Monitoring and Reporting Program. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. **Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

3. Leachate Monitoring

Leachate which seeps to the surface from the Unit shall be sampled and analyzed for the constituents listed in Table I upon detection. The quantity of leachate shall be *estimated* and reported as Leachate Flow Rate (in gallons/day).

D. REPORTING REQUIREMENTS

1. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the post-closure period.

2. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or

planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.

3. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:

   a. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

   b. Laboratory statements of results of all analyses evaluating compliance with requirements.

   c. An evaluation of the effectiveness of the leachate monitoring and control facilities, if appropriate, and of the run-off/run-on control facilities.

   d. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. The Standard Observations shall include:

      1) For the Unit:

         a) Evidence of ponded water at any point on the facility (show affected area on map);

         b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

         c) Evidence of erosion and/or of day-lighted refuse.

      2) Along the perimeter of the Unit:

         a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

         b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

         c) Evidence of erosion and/or of day-lighted refuse.

4. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Board **within seven days**, containing at least the following information:

   a. A map showing the location(s) of seepage;

b. An estimate of the flow rate;

c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Board; and

e. Corrective measures underway or proposed, and corresponding time schedule.

5. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the reporting period of the previous monitoring year. This report shall contain:

a. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month reporting periods, shall be submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The Regional Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by the Regional Board.

b. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

c. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

d. An evaluation of the effectiveness of the leachate monitoring/control facilities.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by:_____
THOMAS R. PINKOS, Executive Officer

16 September 2005
(Date)

REH:reh/rac

TABLE I

LEACHATE DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Total Flow	Gallons	Monthly
Flow Rate	Gallons/Day	Monthly
Electrical Conductivity	µmhos/cm	Monthly
pH	pH units	Monthly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Annually
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - Nitrogen	mg/L	Annually
Sulfate	mg/L	Annually
Calcium	mg/L	Annually
Magnesium	mg/L	Annually
Potassium	mg/L	Annually
Sodium	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, see Table II)	µg/L	Annually
Constituents of Concern		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE II

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Volatile Organic Compounds:

USEPA Method 8260

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)

1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dribromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, l-Dichloroethene; Vinylidene chloride)
cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- l ,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- l ,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile

TABLE II

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Methyl brornide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene 1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)

Trichlorofluoromethane (CFC- 11)
Xylene (total)

INFORMATION SHEET

ORDER NO. R5-2005-0135
CITY OF BAKERSFIELD
FOR CLOSURE AND POST-CLOSURE MAINTENANCE
CITY OF BAKERSFIELD SANITARY LANDFILL
KERN COUNTY

The City of Bakersfield owns and maintains the City of Bakersfield Sanitary Landfill, located in the northeast part of the City of Bakersfield about three quarters of a mile south of the Kern River. The site was originally established as a burn dump in 1943 and converted to a sanitary landfill in 1956. The site ceased operation in September of 1983. The County of Kern operated the site from 1975 to 1983. The facility consists of one 132-acre unlined waste management unit (Unit) and is currently regulated by Waste Discharge Requirements Order No. 5-00-235. This Order revises the existing Waste Discharge Requirements to provide for the construction of a final cover and to regulate post-closure maintenance of the facility.

The site is near the eastern edge of the San Joaquin Valley near the boundary with the southern Sierra Nevada Mountains. The climate is semi-arid, with hot, dry summers and cool winters. The average annual precipitation is 6.7 inches with an average pan evaporation of 73.4 inches. The site is not within a 100-year floodplain according to FEMA maps.

The closest potential Holocene fault is the Kern Bluff Fault, approximately two miles east of the facility. The fault has offset modern soils by approximately two feet. Two historic earthquakes were recorded on the fault in 1954 and 1985 with Richter magnitude 2.5 and 2.4, respectively.

Land within 1,000 feet of the site is used for residential, non-irrigated open space, and commercial activities including oil production. Residential areas are located immediately south of the facility.

First encountered groundwater is over 600 feet below the native ground surface. Groundwater elevations range from approximately 103 feet to 121 feet AMSL. Only one groundwater monitoring well has been completed on site preventing site-specific calculation of groundwater gradient and flow direction. At least one boring encountered natural gas before reaching any groundwater. The groundwater appears to be unconfined with a regional direction of flow to the south, away from the Kern River. Monitoring data indicates that groundwater has a total dissolved solid range of 262 to 302 mg/l.

Volatile organic compounds (VOCs) that are common constituents of crude oil and other petroleum constituents have been detected in groundwater at the site. Detection of these

compounds is believed to be naturally occurring and not indicative of a release from the Unit. Other volatile organic waste constituents have not been detected in groundwater.

Analysis of soil-pore liquid has detected numerous VOCs. The VOCs detected include chlorobenzene, dichlorobenzene, dichloroethene, ethylbenzene, isopropylbenzene, isopropyltoluene, naphthalene, toluene, trichlorobenzene, trimethylbenzene, xylenes, acetone, carbon disulfide, and methyl ethyl ketone. Many of these VOCs may be associated with naturally occurring petroleum deposits in the area. It appears that soil-pore liquid has been degraded by waste constituents being carried from the Unit by landfill gas.

The Discharger demonstrated that groundwater detection monitoring is not feasible due to the depth to groundwater, the thickness of the vadose zone, the presence of subsurface natural gas hazards, and the lack of evidence for landfill impacts to groundwater. The Discharger also demonstrated that site specific conditions preclude the operation of an effective vadose monitoring system. The landfill gas extraction system and the construction of a final cover system will be the best management practice available for the containment of the waste and the removal of landfill gas entering the vadose zone.

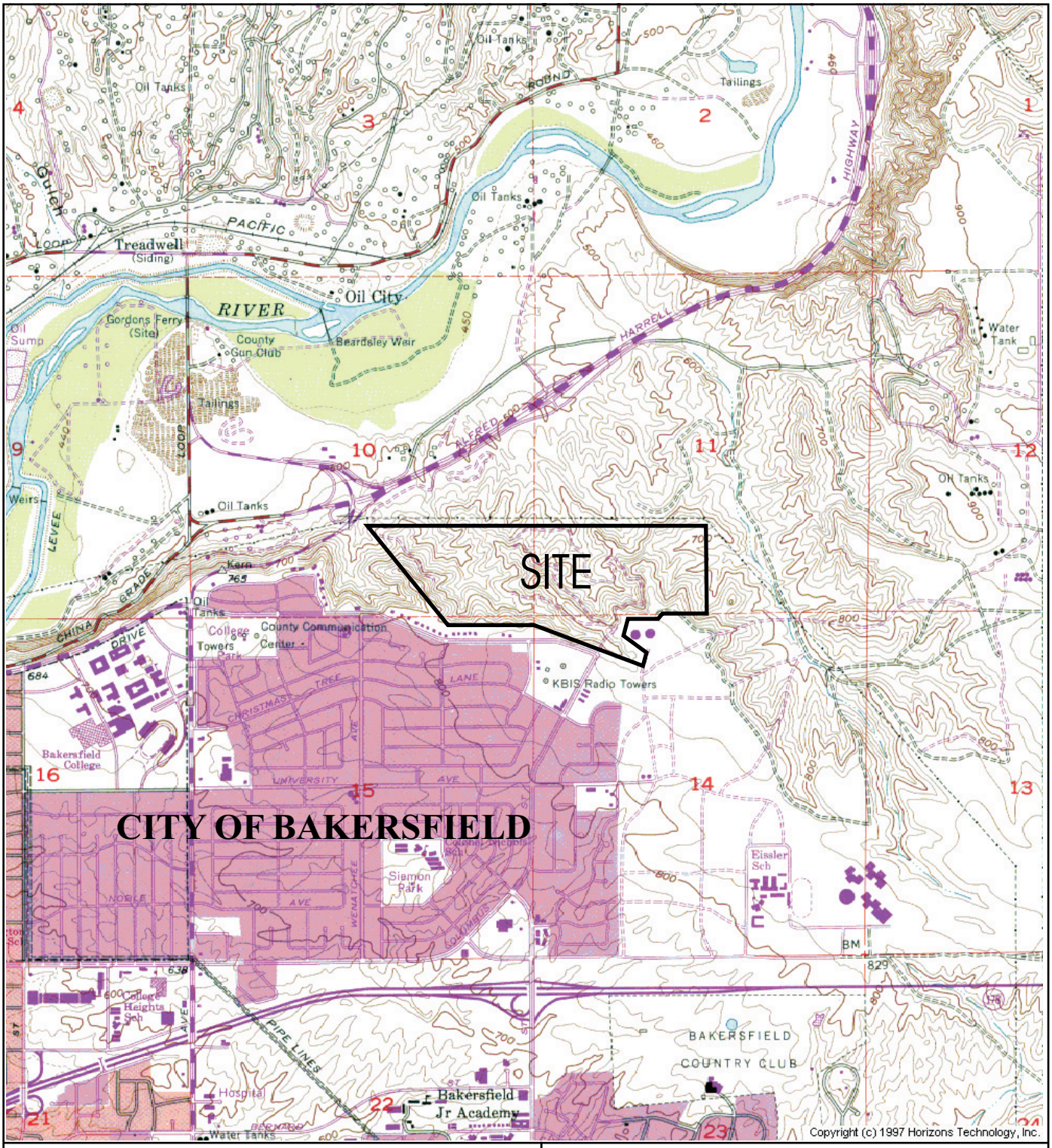
The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design. The Discharger demonstrated that an evapo-transpirative cover utilizing soil from a nearby borrow source would be an appropriate engineered alternative to the prescriptive design. This Order requires the Discharger to install a pan lysimeter(s) beneath the final cover for long-term monitoring of the cover integrity.

On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulations (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal municipal solid waste [MSW] regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate Class II or Class III landfill units at which municipal solid waste is discharged. Section 258.1(c) of Subtitle D states that Subtitle D regulations do not apply to municipal solid waste landfills that do not receive waste after 9 October 1991. The facility ceased discharge in 1983. Therefore, the provisions of Subtitle D do not apply to this Unit.

The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301. Revision of the waste discharge requirements updates the requirements to

conform with the California Water Code and Title 27, California Code of Regulations, §20005 et seq.

REH:reh/rac:9/16/2005



EXPLANATION

FACILITY BOUNDARY

0 0.5 MILE

N

BASE MAP SOURCE: USGS 7.5' CITY OF BAKERSFIELD QUADRANGLES

(3/16/2005) (REH)

ATTACHMENT A

ORDER NO. R5-2005-0135

WASTE DISCHARGE REQUIREMENTS FOR

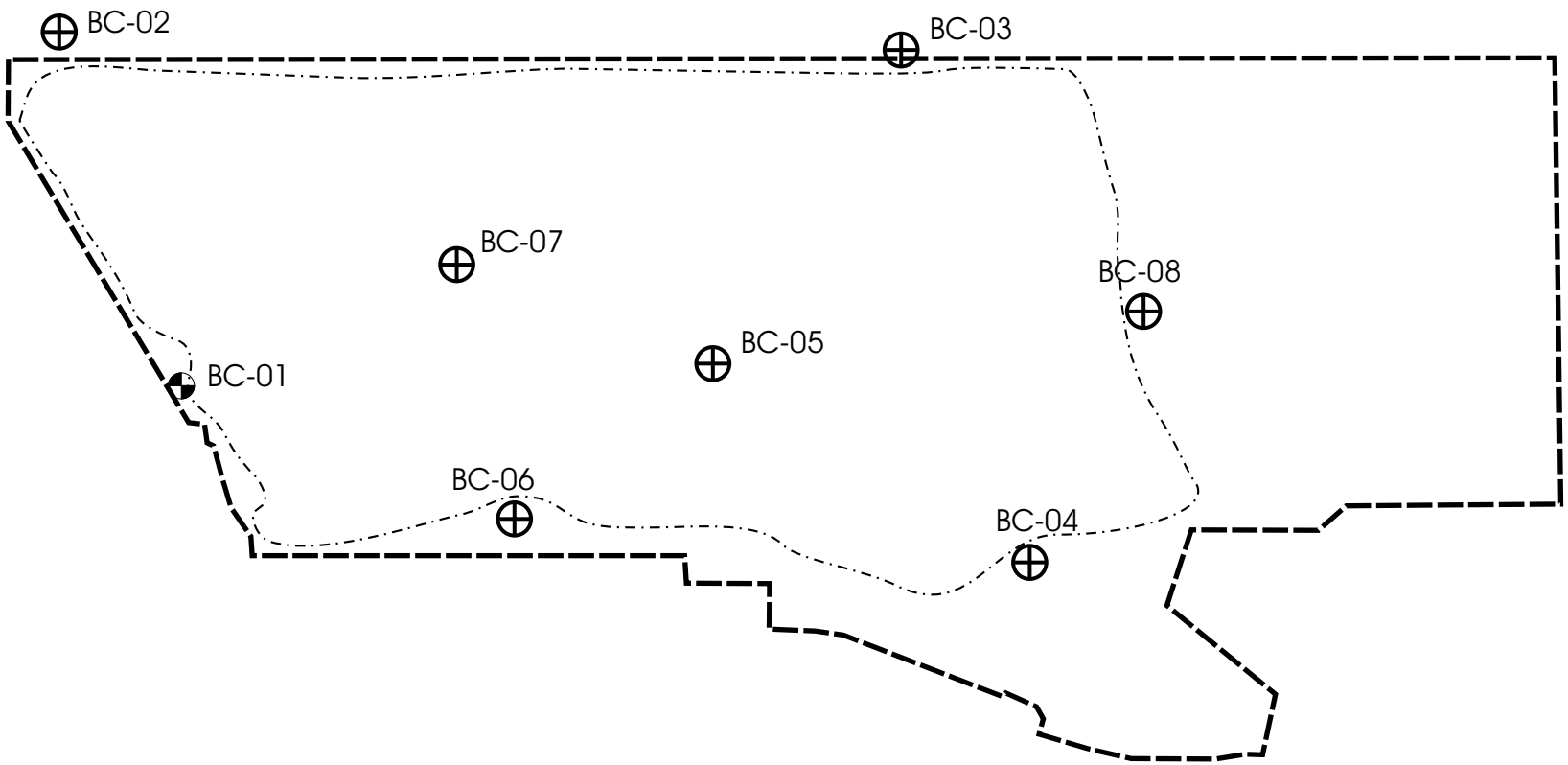
CITY OF BAKERSFIELD

FOR CLOSURE AND POST-CLOSURE MAINTENANCE

CITY OF BAKERSFIELD SANITARY LANDFILL

KERN COUNTY

LOCATION MAP



EXPLANATION

- LANDFILL FACILITY BOUNDARY
- LIMIT OF WASTE
- MONITORING WELL
- LYSIMETER LOCATION

N

0 250 500 Feet

(7/5//2005)

(REH)

ATTACHMENT B

ORDER NO. R5-2005-0135

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF BAKERSFIELD
FOR CLOSURE AND POST-CLOSURE MAINTENANCE
CITY OF BAKERSFIELD SANITARY LANDFILL
KERN COUNTY

SITE MAP